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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,990	08/16/2000	Jun Tanida	325772019100	1829

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EXAMINER

AGGARWAL, YOGESH K

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/639,990	Applicant(s) TANIDA ET AL.	
	Examiner Yogesh K Aggarwal	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7,9-11 is/are rejected.
- 7) ☒ Claim(s) 6,8 and 12-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/19/2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers (US Patent # 6,137,535) in view of Namiki (US Patent # 6,016,224).

[Claim 1]

Meyers teaches an image input apparatus comprising an image formation unit array having a plurality of image formation units arranged in an array (figure 2, element 12), a photoelectric converter element having a flat photosensitive surface (figure 2, element 24), the photosensitive surface being divided into regions, each corresponding to one of the image formation units, where each region includes a plurality of photosensitive elements arranged therein (col. 5 lines 43-50); and a restricting member (figure 2, element 16 and 70) for restricting, independently for

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each of the plurality of image formation units, optical paths along which the light beams are focused (col. 5 lines 51-57), wherein the plurality of image formation units individually receive light beams substantially from an identical area and focus the received light beams on different regions of the photosensitive surface of the photoelectric converter element to form two-dimensional images of a subject in corresponding regions of the photosensitive surface (col. 6 lines 6-22, figure 2) except that each two-dimensional image is an image of substantially the same area of an object in the identical area as seen from a different view point. However Namiki teaches an image side lens array 2 (figure 2a) constructed from two-dimensionally arranged lens elements 21 (figure 2c) having identical performance so that a replicated input image array 4 (is formed for each of the microlenses 2 (col. 4 lines 9-16) in order to increase the field of view. The Examiner notes that the replicated input images formed on the image formation surface by different lens arrays are being read upon two-dimensional images of an image of substantially the same area of an object in the identical area as seen from a different view point by different microlenses. Therefore taking the combined teachings of Meyers and Namiki, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to use the arrangement of Namiki to form a replicated input image for each of the lens arrays having a larger field of view into the system of Meyers which form images of a small segment of the field of view in order to increase the field of view to get the whole image for each lensarray instead of the partial images.

[Claim 4]

Meyers teaches restriction member being realized as partition walls (col. 5 lines 51-53, figure 2, element 70).

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[Claim 5]

An image input apparatus as claimed in claim 4 “.... wherein those pixels of the photoelectric converter element, which output a bright-state signal when light enters the plurality of image formation units, are regarded as effective pixels”. [Any photoelectric element in an image sensor such as Meyers, which outputs a bright state signal when bright light is incident thereon, is inherently regarded as an effective pixel].

[Claim 9]

Meyers teach a signal processing system for processing signals obtained as a result of photoelectric conversion performed by the photoelectric converter element by using processing functions provided one for each of the plurality of image formation units (col. 5 lines 31-42).

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers (US Patent # 6,137,535), Namiki (US Patent # 6,016,224) and further in view of Waldern et al. (US PG-PUB # 2001/0043163).

[Claim 7]

Meyers teaches the limitation of claim 1 but fails to teach “.... wherein deflecting members provided one for each of the plurality of image formation units”. However this limitation is well known in the art as taught in Waldern (Paragraph 132, figure 13, element 262). Therefore taking the combined teachings of Meyers and Waldern, it would have been obvious to one skilled in the art at the time of the invention to have deflecting members provided one for each of the plurality of image formation units. The benefit of doing so would be to have deflecting members to be used for deflecting the beam perpendicular to the microlenses, which are used for focusing as taught in Waldern (Paragraph 132).

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5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers (US Patent # 6,137,535), Namiki (US Patent # 6,016,224), Waldern et al. (US PG-PUB # 2001/0043163) as applied to claim 7 and in further view of Hirukawa et al. (US Patent # 6,249,335).

[Claim 10]

Meyers, Namiki and Waldern teach the limitations of claim 7 but does not explicitly teach “.... image formation units are diffracting optical elements, and the deflecting members are one-dimensional diffraction gratings”. However Hirukawa et al. teach that the mask R1 (an image formation unit) has a one-dimensional diffraction grating pattern RG1 and are therefore diffracting elements having optical properties (col. 13 lines 24-34). Therefore taking the combined teachings of Meyers, Waldern and Hirukawa, it would have been obvious to one skilled in the art at the time of the invention to have mask R1 (an image formation unit) having a one-dimensional diffraction grating pattern RG1 and are therefore diffracting elements having optical properties. The benefit of doing so would be so that high resolution and great depth of focus are obtained as taught in Hirukawa (col. 14 lines 1-3).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers (US Patent # 6,137,535), Namiki (US Patent # 6,016,224), Waldern et al. (US PG-PUB # 2001/0043163) as applied to claim 7 and in further view of Zarschitzky et al. (US Patent # 5,712,730).

[Claim 11]

Meyers, Namiki and Waldern teach the limitations of claim 7 but does not explicitly teach “.... Deflecting members are Fresnel zone plates, the Fresnel zone plates being constituent

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components of the image formation units, the Fresnel zone plates having pattern centers thereof so arranged as to be decentered in such directions as to deflect light incident thereon.” However these limitations are well known and used in the art as shown in Zarchitsky et al. (col. 6 lines 55-64, col. 7 lines 5-16). Therefore taking the combined teachings of Meyers, Waldern and Zarchitsky, it would have been obvious to one skilled in the art at the time of the invention to have Deflecting members that are Fresnel zone plates, the Fresnel zone plates being constituent components of the image formation units, the Fresnel zone plates having pattern centers thereof so arranged as to be decentered in such directions as to deflect light incident thereon. The benefit of doing so would be to provide focusing of the beam in which diffraction grating structures is a portion of the Fresnel lens.

Allowable Subject Matter

7. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 8, 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5:30PM.

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9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Thai Tran can be reached on (703) 305-4725. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA
January 28, 2005


TUAN HO
PRIMARY EXAMINER